Smoke Impacts Summary – Northern CA Fires, September 11th, 2012
Prepared by Gary Curcio (USDA-FS Northern Region)

The statements below are those of the author and do not represent official USFS announcements, views, or policy. They are meant as a research discussion of models and forecast data only. All monitoring data presented is preliminary and has not been quality assured.

Key Points

- **New fire start late last night, Ward Fire is expected to be a significant smoke producer in the North Zone today as all other fires have all tailed off.**
- **The Ward Fire will be watched for smoke production as the North Zone Ops winds down SMOKE INTEL. The operation is scheduled to close down by the end of shift today.**
- **Tonight Interstate 5 from Castella to Lakehead is an area of concern.**
- **All old fires unanimously did not record new heat signatures – good news.**
- **Suppression efforts are continuing to make progress and nearby communities can still be affected overnight but less.**
- **Blue-Sky runs indicate a push of the smoke today to the S or SW and fanning out overnight.**
- **It still expected that smoke dispersion conditions will be declining.**
- **Air Quality Alerts were not posted for the counties. There was a Hazardous Weather Outlook for Upper Trinity River this afternoon and for tonight. This is due to smoke.**
- **There are no Red Flag Warnings.**

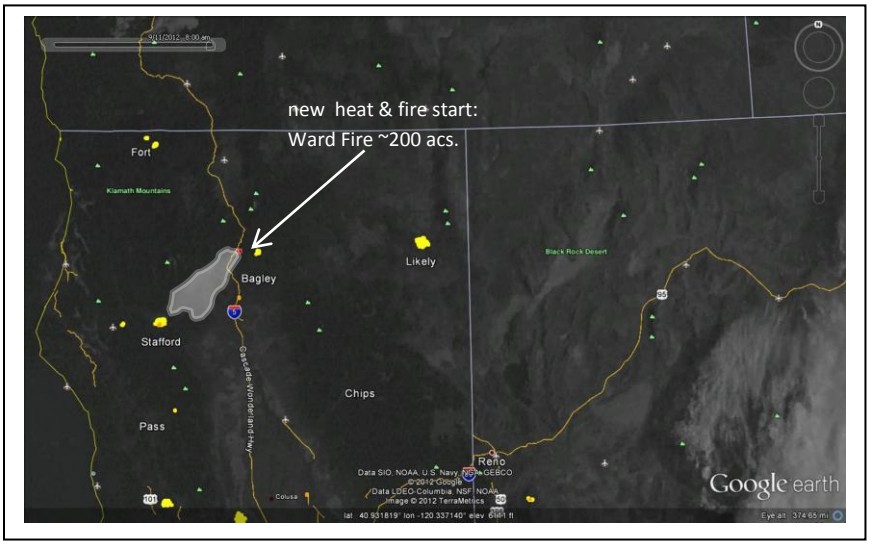
Past and Current Conditions:

Yesterday afternoon wind speeds still continued to lessen as compared to the previous day. There was basically no new additional acreage recorded from existing fires that would have contributed to the areas smoke production. There was a new fire start, the Ward Fire. Wind speeds kept concentrations down and helped decrease smoke concentration levels throughout the North Zone. Yet Anderson AQ Station's peak value was 37 µg/m³, while Covelo was 20 µg/m³. Both of these were improvements from the previous day. Early this morning these two AQ stations values reached 10 µg/m³.and 15 µg/m³ respectively. The trending of AQ is for improvement.

This morning the Stafford Fire still impacted the Hayfork Station. At 7 am the observed value for particulates was 277 µg/m³. Compared to yesterday's value, 167µg/m³, this was an increase. There are still localized areas of concern.

During the North Zone Fires Conference Call, all fires reported AQ was fair to good for their respective fires. Communities within the vicinity of these fires, down drainage or downwind, will still be affected overnight.

Figure 1 shows North Zone fires that registered active heat yesterday afternoon. There were none. However, there was a new heat signature, the Ward Fire and early this morning its plume was detectable.



Model Output (Next 24 hours):

- Old fires in the North Zone are generating minimal smoke. This is from internal burning well inside containment lines. Of these fires, the Stafford, is the most significant as it continues to impact the Hayfork Community.
- The new fire start, the ***Ward Fire,*** is currently generating the most smoke. It's position makes it prone for future fire growth as well as significant potential for smoke production.
- ***Ward Fire will generate concern for Interstate 5 from Castella to the Lakehead.***
- ***Smoke dispersion for today is not as good as yesterday and the trend for the week is for dispersion to degrade further. The Ward Fire is the one fire that is of major concern because of its proximity to the Interstate. All other fires continue to decline their smoke production is decreasing.***

- Smoke trajectories and Blue-Sky runs show again the difference between being on the west versus east of the Interstate 5 corridor.

- Model outputs for 12PM PDT (Figure 3) show smoke plumes west of the interstate moving to the S. This movement eventually slows down and begins to fan out for the evening at 5:00 pm (Figure 4). The fires east of the interstate have

really lowered their smoke production and are not displayed. ***However, the exception is the Ward fire. It is not displayed as it did not get incorporated into the Blue-Sky model run.***

- ***The smoke assessment (even with small burnout operations on other fires, the availability of forest fuels and trending of smoke dispersion conditions downward) is anticipated that air quality will still improve slightly. The exception will be the Castella & Lakehead areas due to the Ward Fire.***

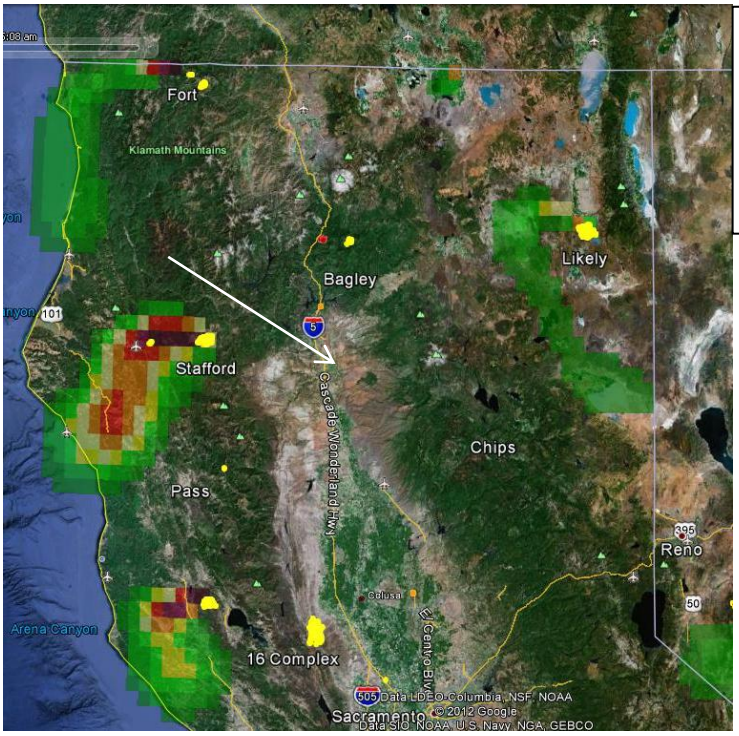


Figure 2. Predicted smoke effects from the northern CA fires at 8:16 AM PDT, September 11th. Greens indicate low concentrations, yellow and orange are moderate concentrations, and red and purple are high concentrations.

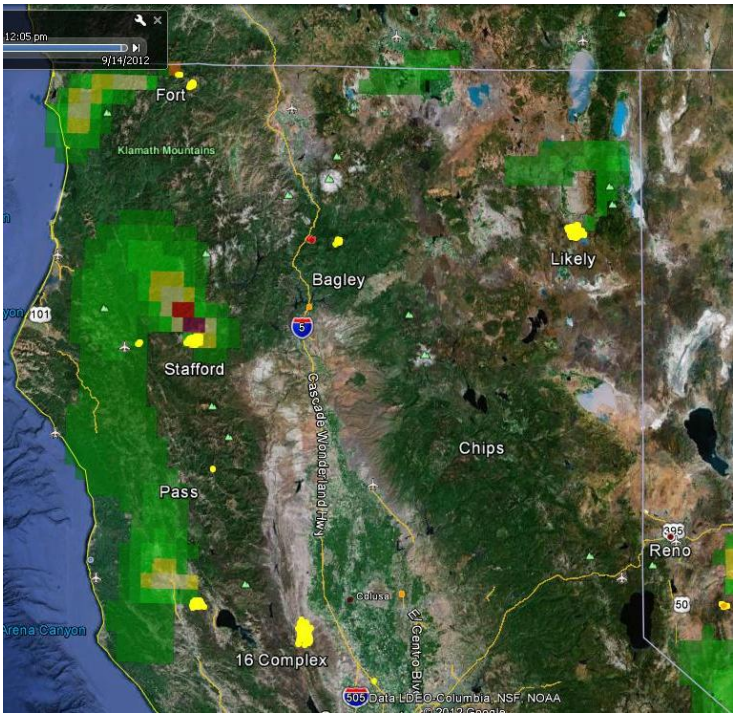


Figure 3. Predicted smoke effects from the northern CA fires at 12:05 PM PDT, September 11th. Greens indicate low concentrations, yellow and orange are moderate concentrations, and red and purple are high concentrations.

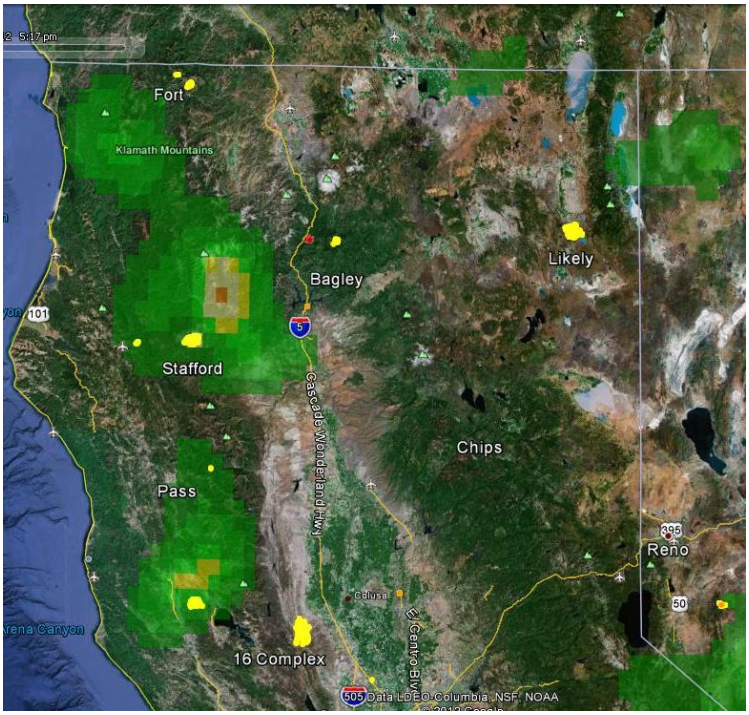


Figure 4. Predicted smoke effects from the northern CA fires around 5:17 PM PDT, September 11th. Greens indicate low concentrations, yellow and orange are moderate concentrations, and red and purple are high concentrations.

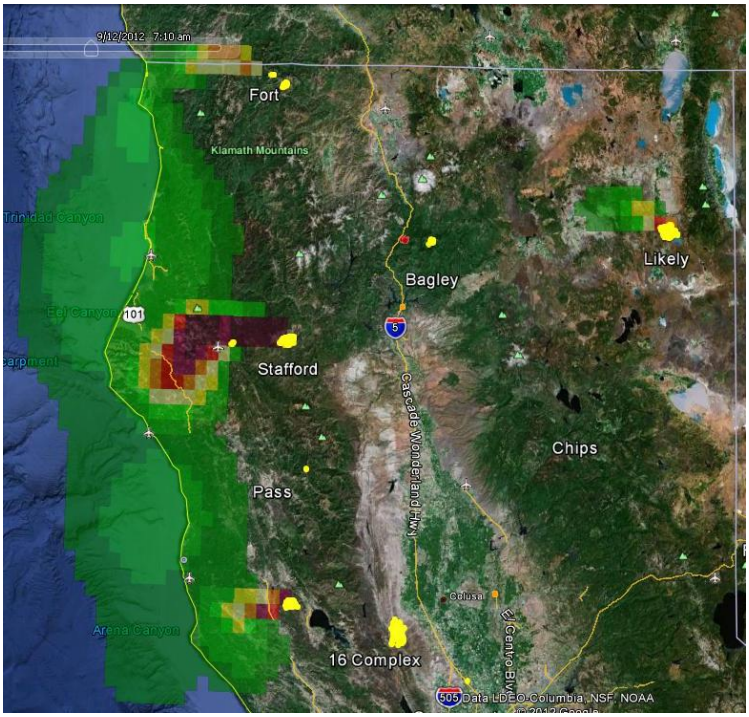
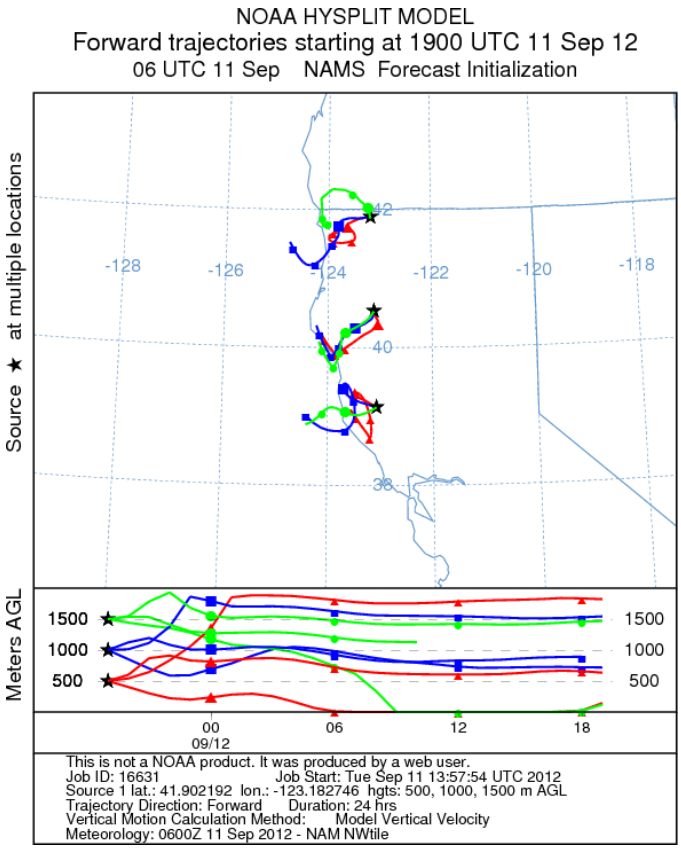


Figure 5. Predicted smoke effects from the northern CA fires at 7:10 AM PDT, September 12th. Greens indicate low concentrations, yellow and orange are moderate concentrations, and red and purple are high concentrations.



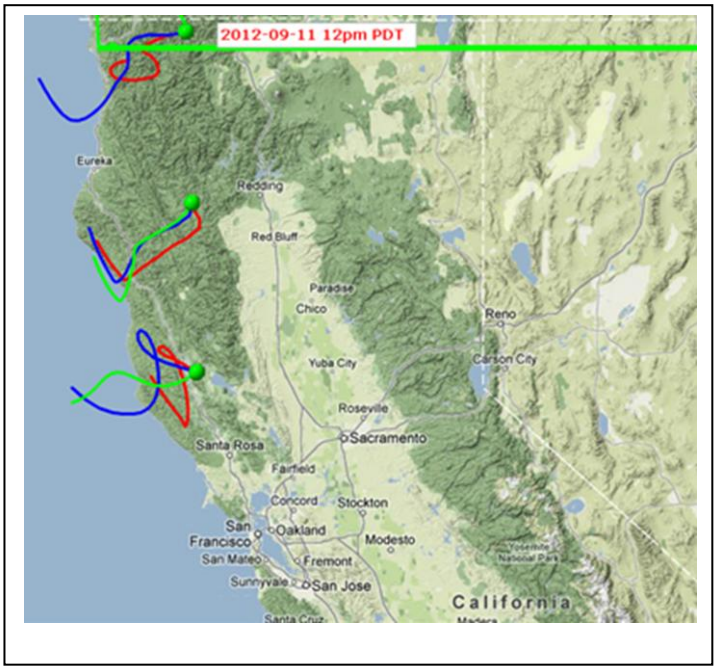
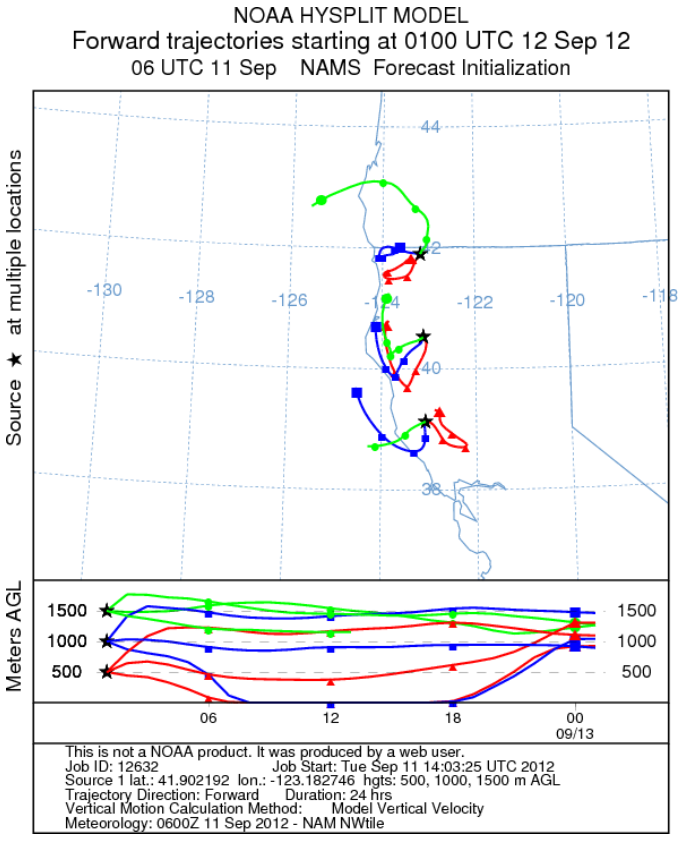


Figure 6. 24-hour forward trajectories starting from top to bottom for the Fort Complex, Stafford, and Scott Fires, starting at 12:00 PM PDT, September 11th, with release heights of 500 (red), 1000 (blue), and 1500 (green) meters AGL



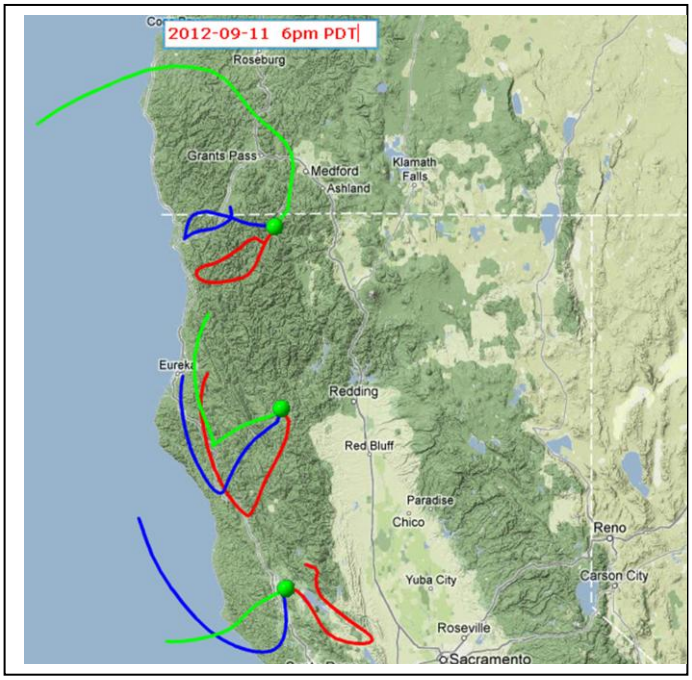
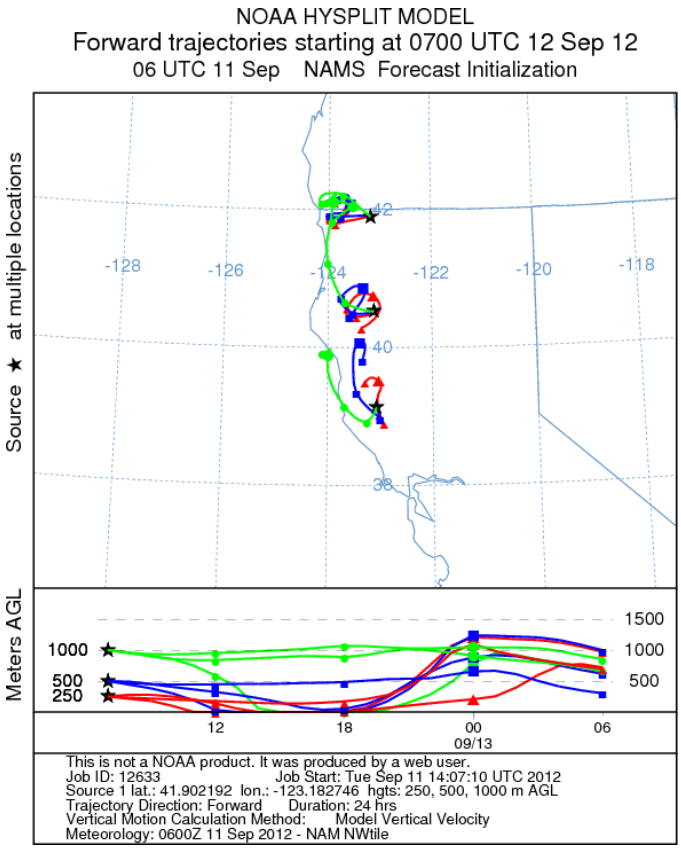


Figure 7. 24-hour forward trajectories starting from top to bottom for the Fort Complex, Stafford, and Scott Fires starting at 6:00 PM PDT, September 11th, with release heights of 500 (red), 1000 (blue), and 1500 (green) meters AGL.



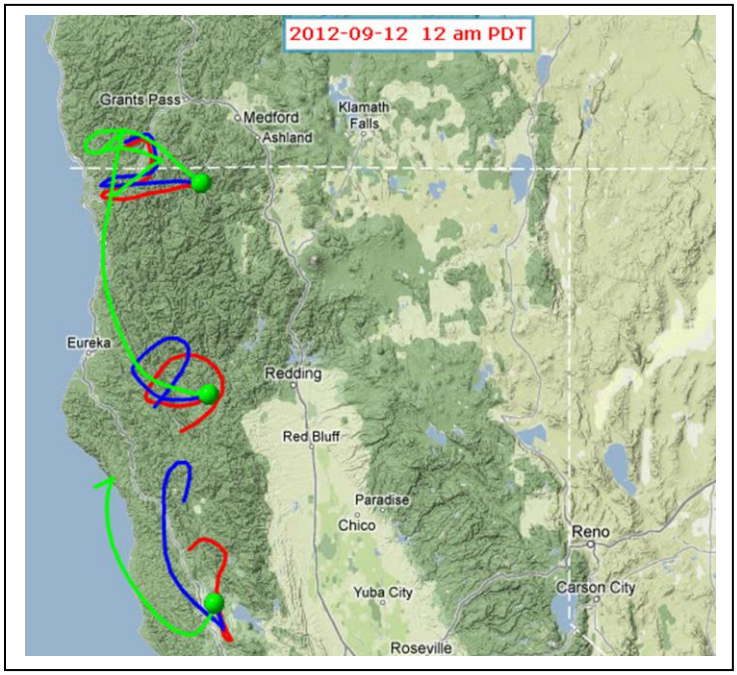
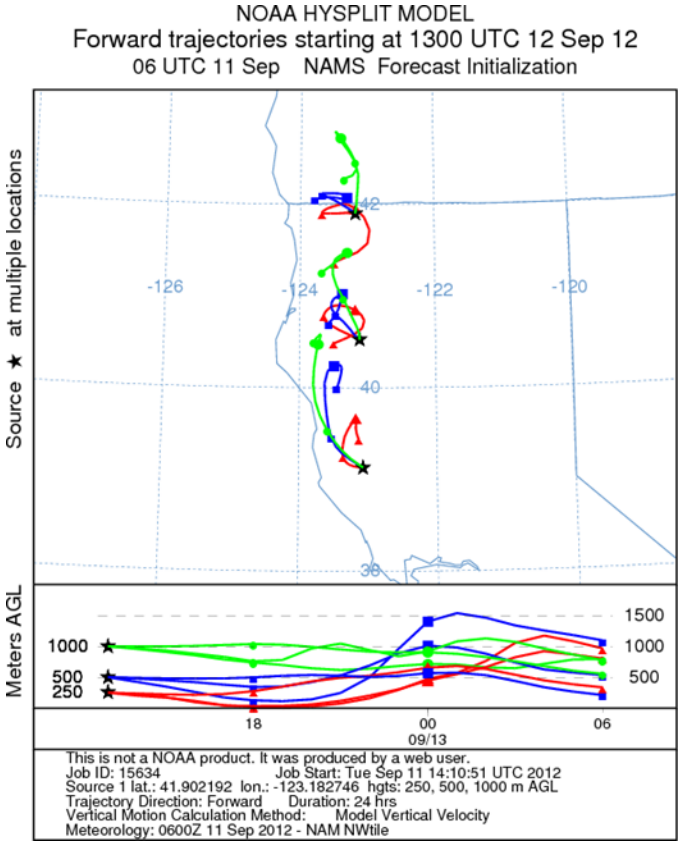


Figure 8. 24-hour forward trajectories starting from top to bottom for the Fort Complex, Stafford, and Scott Fires starting at 12:00 AM PDT, Sep 12th, with release heights



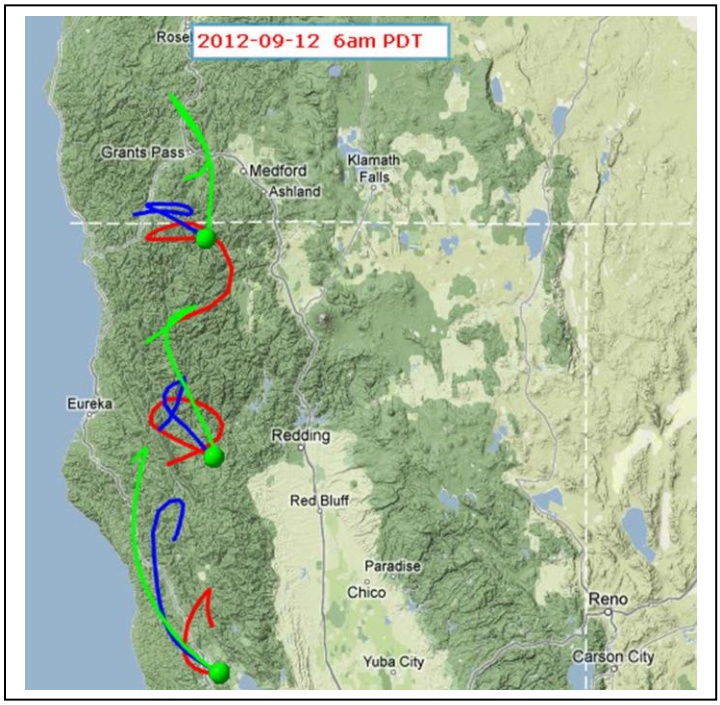
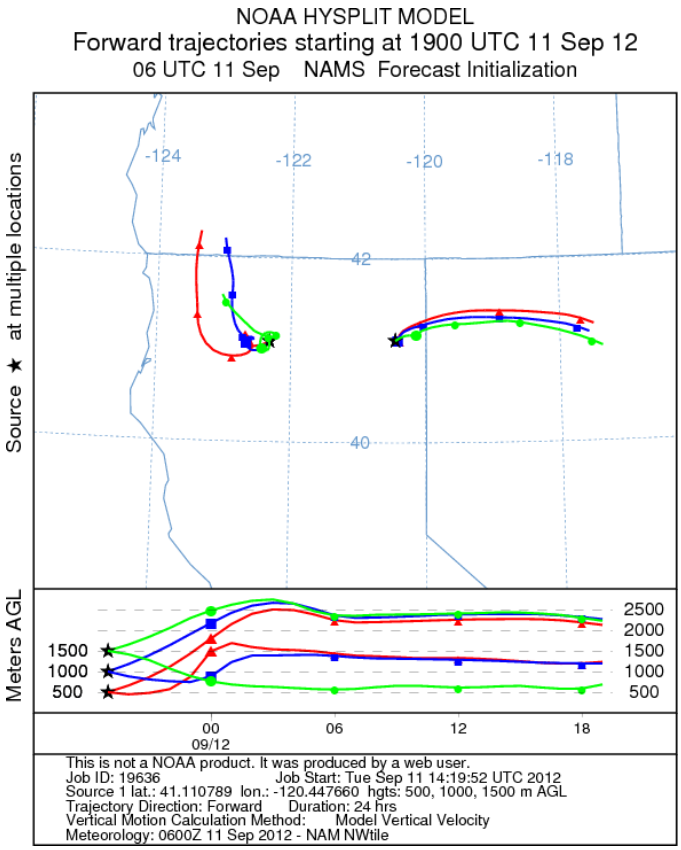


Figure 9. 24-hour forward trajectories starting from top to bottom for the Fort Complex, Stafford, and Scott Fires, starting at 6:00 AM PDT, Sep 12th, with release heights of 250 (red), 500 (blue), and 1000 (green) meters AGL.



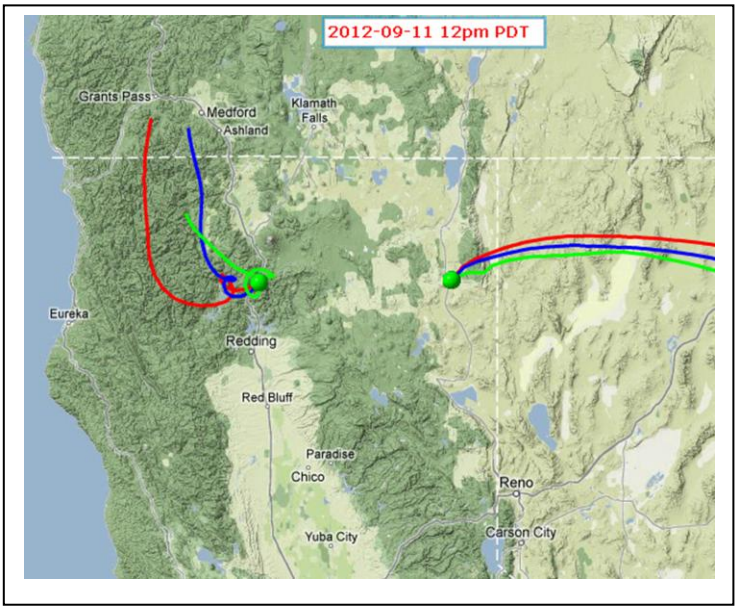
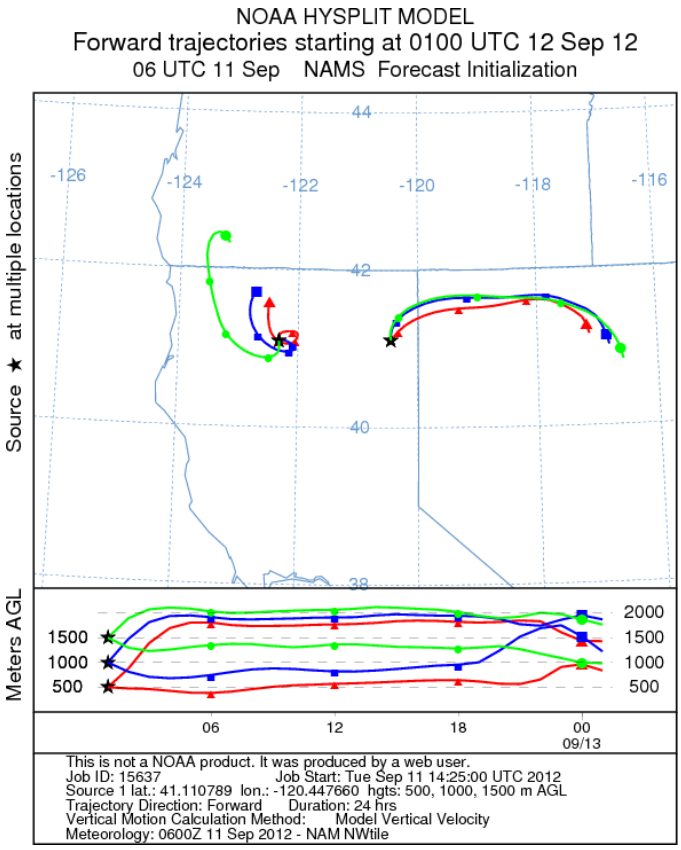


Figure 10. 24-hour forward trajectories starting from left to right for the Ward and Likely Fires starting at 12:00 PM PDT, September 11th, with release heights of 500 (red), 1000 (blue), and 1500 (green) meters AGL



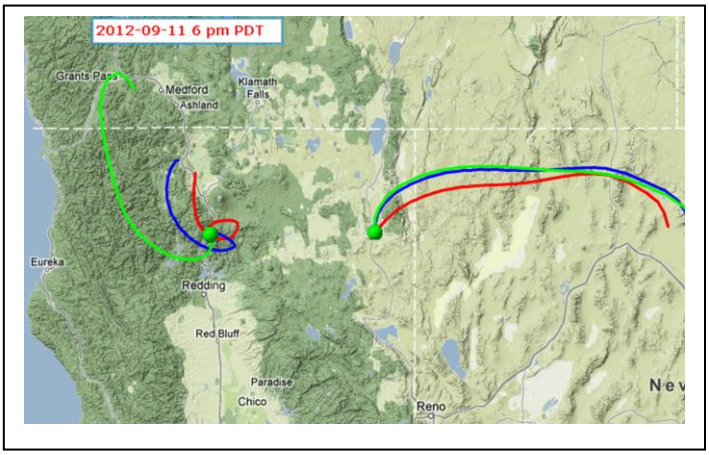
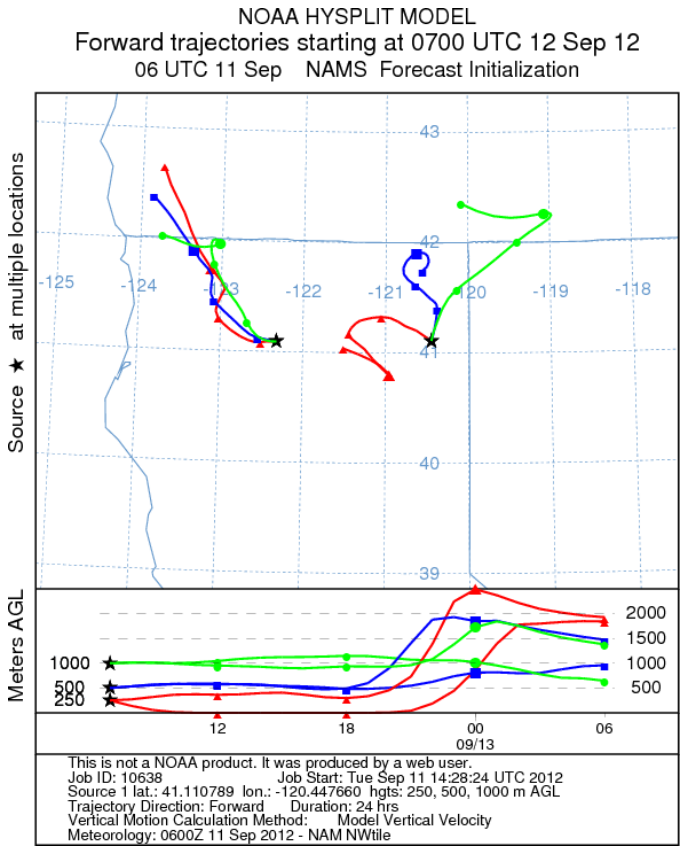


Figure 11. 24-hour forward trajectories starting from left to right for the Ward and Likely Fires starting at 6:00 PM PDT, September 11th, with release heights of 500 (red), 1000 (blue), and 1500 (green) meters AGL.



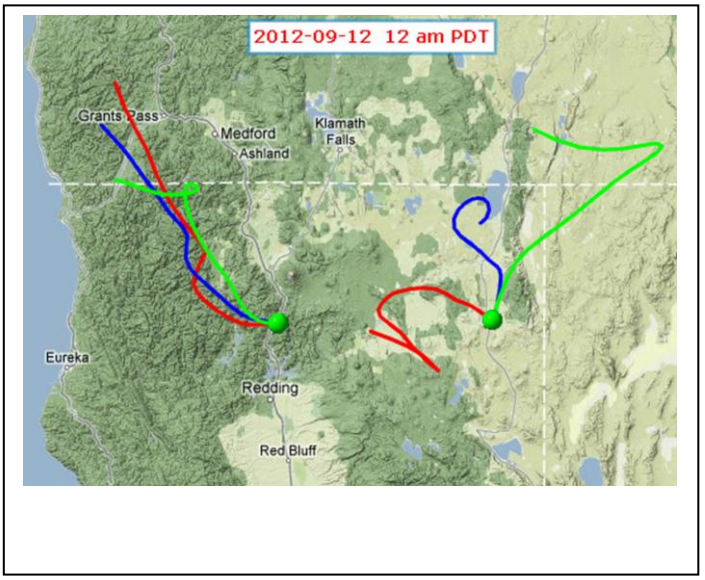
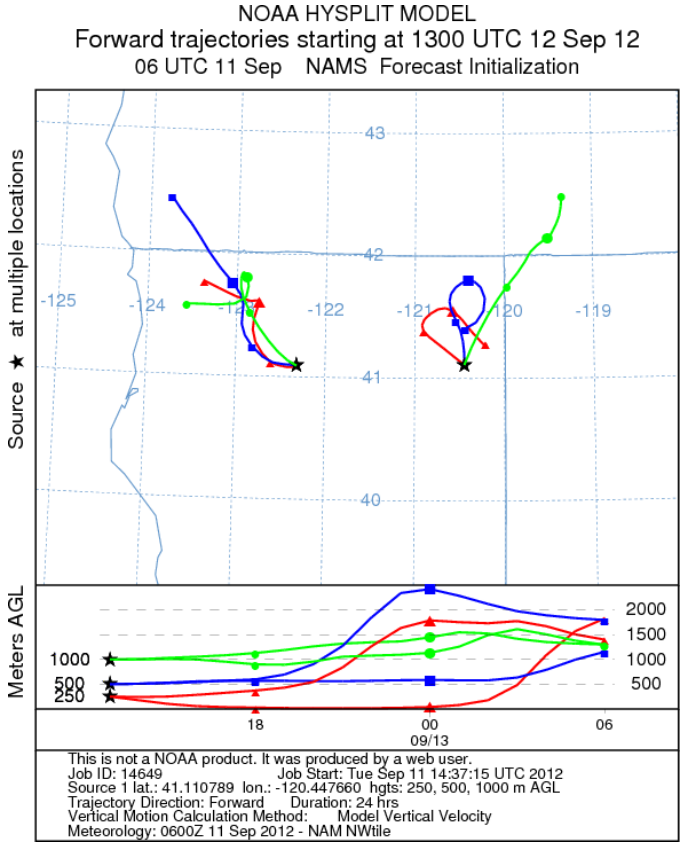


Figure 12. 24-hour forward trajectories starting from top to bottom for the Ward and Likely Fires starting at 12:00 AM PDT, Sep 12th, with release heights of 250



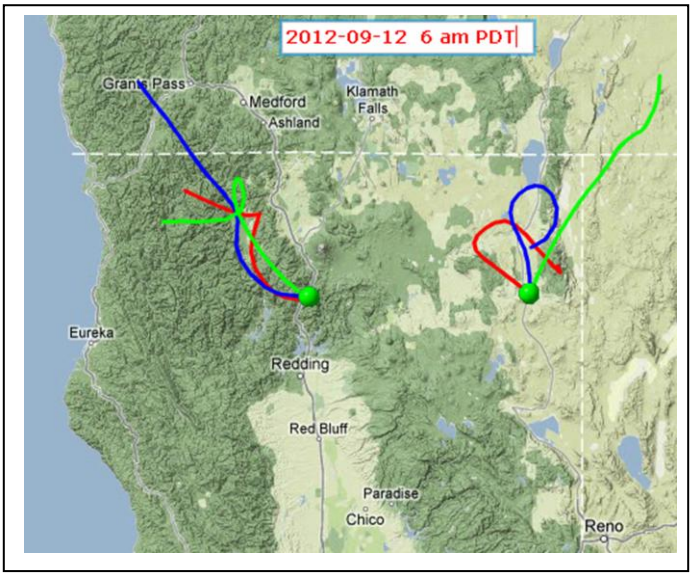


Figure 13. 24-hour forward trajectories starting from left to right for the Ward and Likely Fires starting at 6:00 AM PDT, Sep 12th, with release heights of 250 (red), 500 (blue), and 1000 (green) meters AGL.